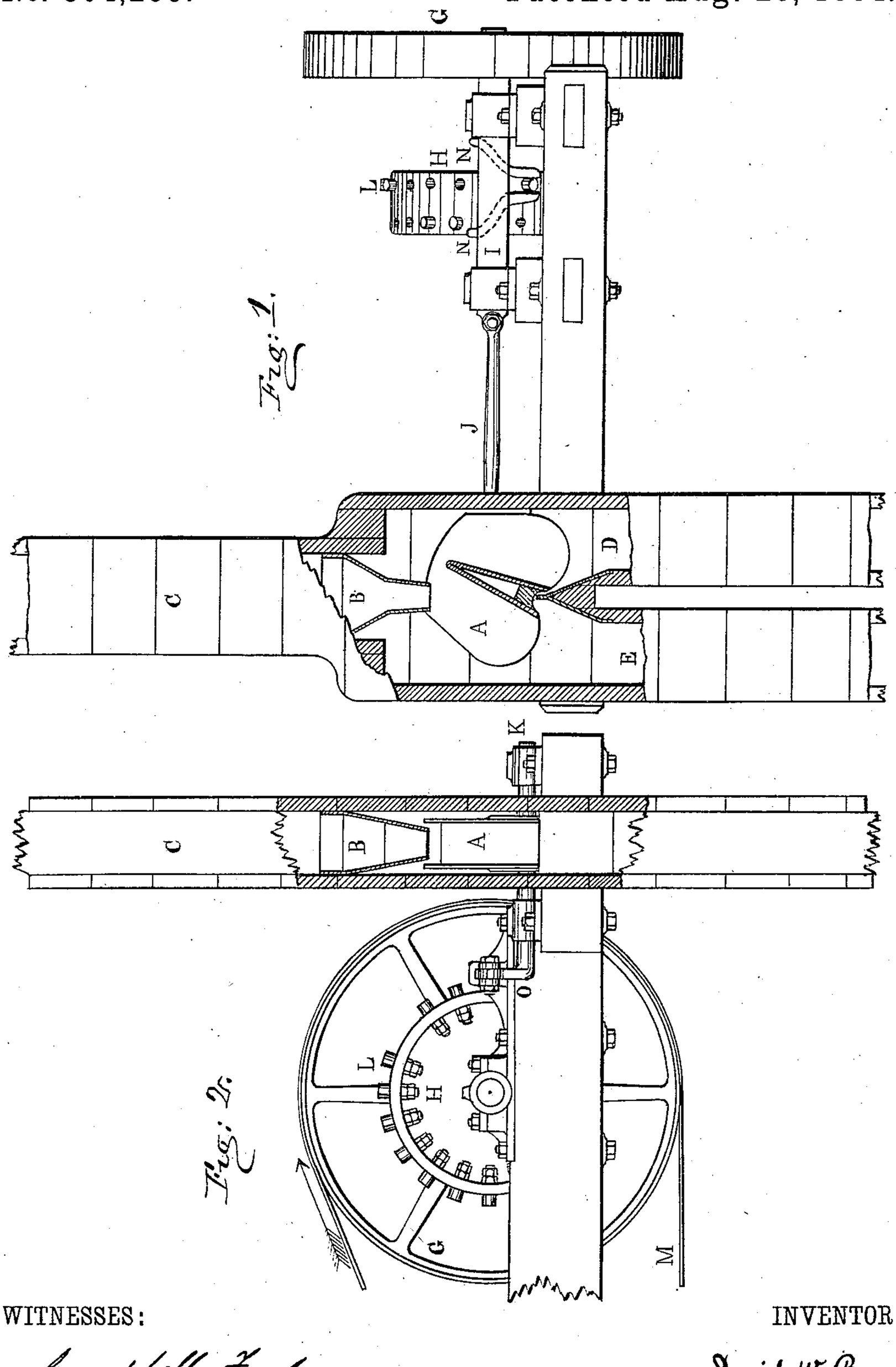
(No Model.)

D. W. BRUNTON.

ORE SAMPLE MACHINE.

No. 304,259. Patented Aug. 26, 1884.



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DAVID WILLIAMS BRUNTON, OF DENVER, COLORADO.

ORE-SAMPLE MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,259, dated August 26, 1884.

Application filed May 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, DAVID WILLIAMS BRUNTON, of the city of Denver, county of Arapahoe, and State of Colorado, have invented a new and useful Ore-Sampling Machine, of which the following is a specification, in which reference is made to the accompanying drawings, making part of this specification, wherein—

Figure 1 is a front elevation of the machine having the housing cut away to display the vibrating spout. Fig. 2 is a side elevation of the same.

My invention relates to the class of machines which are used for the purpose of taking from large lots of ores small samples which will correctly represent the whole.

Heretofore all attempts at mechanical sampling have been made upon one principle—viz., by dividing or cutting out from a falling stream of ore by means of narrow spouts, dividing flanges, or traveling buckets a small part of said ore. All of these devices have proved unreliable and unsatisfactory from the fact that the dividing-edges of the spouts, flanges, or buckets would soon become obstructed by sack-strings, chips, and soft clayey ores, thereby rendering the division of the stream inaccurate. Even if these objections did not occur correct samples could not be obtained, as the system itself is wholly faulty. In either a vertical or inclined spout a falling stream of ore is never entirely homogeneous in all its parts, there being a constant tendency to a greater proportion of coarse rapidly-traveling particles in the center of the stream and an excess of the finer slower-moving particles on the edges; consequently no part of the stream would exactly represent the average of the whole. Again, when intercepting-buckets are used the coarse particles often rebound from the buckets into the rejected ore, thus rendering the sample wholly inaccurate. My invention obviates all of these defects by deflecting the entire stream of ore alternately to the right and left into two separate portions, the relative proportions of these two divisions to each other being determined by the difference in time between the deflections to the right and the deflections to the left. I attain this result by the mechanism illustrated in the accompanying drawings, in which—

C is a vertical or inclined spout containing the falling stream of ore. B is a funnel for narrowing the width of the falling stream, so as to reduce to a minimum the necessary travel of the deflecting-chute A. This chute A is pivoted upon the rock-shaft K, and when it is deflected to the right the entire stream of ore is thrown into E, and when it is deflected to the left the entire stream is thrown into D. The deflection is caused by the movement of the crank O, receiving its motion from the driving-bar I, and connected with it by the pitman J. The driving-bar I receives its motion from the pins L in the face of the revolving wheel H, which is driven by the pulley G, receiving motion from the belt M or any other suitable driving device. The face of the wheel H is perforated by two rows of holes, the distance between the two rows being the same as the necessary movement of the crank O. Into these holes are inserted a number of pins, L, held in place by jam-nuts on the interior of the wheel-face. Preferably twenty holes are bored in each row and eighteen pins are employed, each hole or pin representing five per cent. of the time necessary to complete a revolution of the wheel. Now, if fifty per cent. of the pins are placed in the right-hand row of holes and fifty per cent in the left, then the revolution of the wheel H, carrying the pins L through the guides N N on the driving-bar I, will hold the deflecting-chute A on the right during one-half of the revolution, and on the left during the other half, thus dividing the stream into two equal portions. If twenty per cent. of pins are placed in the right-hand row and eighty per cent. in the left, then the deflecting-chute A will be held on the right during one-fifth of a revolution, and on the left during four-fifths, thus throwing twenty per cent. of the ore into the spout E and eighty per cent. into the spout D, &c. In practice, the wheel is driven with considerable velocity, so as to make the divisions of time as minute as possible without injuring the machine by excessive vibration.

It is evident that the pins L can be placed

on the face of wheel H in two rows and the guides N N attached directly to the pitman without the intervention of drive-bar I without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. A rotating wheel, H, provided with a double row of holes in its face and a set of movable pins or their equivalent, for the purpose of acting upon the guides N N and producing a variable, irregular, intermittent motion upon the sliding bar I, substantially as set forth.

2. In an ore-sampling machine, a vibrating spout, A, and a wheel or disk, H, provided with a series of pins, in combination with guides N N, and connecting devices between the guides and spout, for the purpose set forth.

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Witnesses:

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